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GENERALIZING ABOUT TRADE SHOW EFFECTIVENESS: A CROSS-NATIONAL COMPARISON

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Abstract

Trade shows are a multi-billion dollar business in the US and the UK, but little is known about the determinants of trade show effectiveness. In this paper, we build a model that explains differences in trade show effectiveness across industries, across companies and across two countries. We focus on the differences in trade show effectiveness measured in a similar way across similar samples of 171 US and 135 UK firm-show experiences between 1980 and 1991. While the similarities outweigh the differences, we find evidence that trade shows are viewed differently by exhibitors and attendees in these two countries. We are able to make substantial generalizations about the effect of various show selection (go-not go) variables as well as tactical variables (booth size, personnel, etc.) on observed performance. We discuss the implications of our research for developing benchmarks for trade show performance and for better global management of the business marketing communications mix.

1. INTRODUCTION

Trade shows are an important component of the marketing mix for many industrial products, and constitute a multi-billion dollar business both in the United States and Europe. They account for nearly one-fifth of the business marketing communications budget of US firms, and approximately one-fourth of the budget for many European firms (Jacobson 1990; Schafer 1987). According to the US Trade Show Bureau (1994), the number of trade shows in the United States and Canada grew from 3,289 to 4,316 between 1989 and 1994, the number of attendees from 60 to 85 million, and the number of exhibiting companies from 1.0 to 1.3 million. A further growth of more than 30% is expected during the 1990s (Trade Show Bureau 1994), and in a recent Incomm survey, 78% of the respondents felt trade shows were of increasing value to their business (Konopacki 1996).

In the United Kingdom, companies spent almost £500 million at more than 600 British trade shows in 1988, thereby generating more than £1 billion in revenues for the exhibition industry (Cope 1989). According to the Exhibition Industry Federation (EIF), almost 10 million visitors attended these shows, and the industry is widely believed to have grown at an average rate of around 30 percent a year in the 1980's (Cope 1989), even though more recent figures point toward a stabilization at the aforementioned levels (Cobb 1993; Gofton 1991). In Germany, trade shows are among the major activities of cities such as Hannover (1.6 million visitors/year) and Frankfurt, Munich, Köln and Düsseldorf (each with approximately 1 million visitors/year; Florio 1994). Industry observers estimate that 60% of the world's major trade shows are located in Europe (Cech 1990), and the growing unification of Europe is expected to further stimulate this development (AUMA 1991).

In spite of their importance on both continents, trade shows have received little attention in the academic marketing literature. Moreover, the few studies on the issue have mainly considered national shows held within the US (Rosson and Seringhaus 1991), and have been mostly descriptive in nature (e.g., Lilien 1983; Kerin and Cron 1987), not focusing on the relationship

between the firm's tactical decision variables and its objectives for participating at the show. Recently, Gopalakrishna and Lilien (1995) proposed an analytical framework to assess trade show effectiveness. They developed a three-stage model in which three different measures of effectiveness (attraction, contact and conversion effectiveness) are linked to a number of control variables. (They defined attraction efficiency as the percentage of a firm's target audience attracted to its booth, contact efficiency as the fraction of those attracted from the target audience that were actually contacted by the salespeople at the booth, and conversion efficiency as the percentage of those contacted that turned into a sales lead. Since such conversion rates refer to the production of an effect rather than the ratio of result over effort, we will refer to them as effectiveness rather than efficiency measures). Gopalakrishna and Lilien found the key determinants of trade show effectiveness to be the size of the booth, the personnel at the booth and the use of promotional techniques. Their model, however, was calibrated on data from a *single* US show (the 1991 Annual Food Exposition organized by the Institute of Food Technologists), and it is not clear to what extent those results apply to other shows in the same industry, to shows in different industries or to shows in other countries.

Thus, we note that there have been relatively few reports on the relationship between what a firm does (pre-show promotion activity, investment in booth space, investment in booth personnel, etc.) and what the effects are. However, thousands of firms make show decisions every year and see some results. Part of the reason for the lack of published information is that two sources of data--what attendees did at the show and what exhibitors did --are needed to link actions with outcomes. We take advantage of some unique data that link exhibitor and attendee actions at a large number of shows to develop generalizations about trade show effectiveness and to make those generalizations managerially useful.

Our goals for this paper are situated within the domain of empirical generalization. As Bass and Wind (1995, pp. G1) point out, "Science is a process in which data and theory interact leading to *generalized explanations of disparate types of phenomena.* Thus, empirical generalizations are the building blocks of science." Their recognition of the vital role of empirical generalizations in

marketing has been seconded by the Marketing Science Institute in their Research Priorities (e.g., *INFORMS College on Marketing Newsletter*, March 1995, p. 12) and by the AMA in their granting of the 1995 O'Dell Award to Sultan, Farley and Lehmann for their 1990 meta-analysis of diffusion models--an approach toward empirical generalization. Our research addresses these calls for empirical generalization. Specifically, our goals and research objectives are as follows:

1. *Generalization within the US.* Research such as that by Gopalakrishna and Lilien (1995) is limited to a single show. Our first goal is to see if the key drivers of trade show effectiveness generalize/apply to other shows.

2. *Extension within the US.* The generalization process brings us to different industries and to different types and sizes of shows, variables that may influence the effectiveness of show participation. Our second goal is to see how this extension can help us deepen our understanding of how and why effectiveness varies across shows within the US, an extension that should help support the show selection (go / not go) decision.

3. *Generalization across countries.* If there is reason to believe (and we will argue that there is) that the role trade shows play in the marketing mix varies, on average, across countries, then there is value in studying how and to what degree these results hold across countries. Our third goal, therefore, is to study the cross-national generalizability of US trade show effectiveness findings.

We proceed as follows. In Section 2, we position our work relative to the trade show literature. Section 3 describes our data and formulates our research hypotheses. Section 4 discusses the model specification used to test those hypotheses, and we present our empirical results in Sections 5 and 6. Finally, in Section 7 we discuss the managerial implications of our work, and highlight areas for future research.

2. MEASURING TRADE SHOW EFFECTIVENESS

Wind and Thomas (1994) and others have characterized the buying process as a series of

stages in which potential buyers have different information needs that correspond to tasks for the marketer to perform. Some of these tasks, such as generating awareness, are performed primarily through impersonal marketing communications, while others, such as providing customized product offerings, require personal contact. Most business marketers use a mix of personal and impersonal communication vehicles to meet their marketing communications objectives. Trade shows blend some elements of direct selling (there are usually sales personnel in the booth, and, especially in Europe, some selling actually takes place on the show floor) and of advertising (the booth generates awareness and can answer some key questions, even without involvement of the booth personnel). Exhibitors' objectives for participating in a trade show are manifold: some are interested in generating high-quality leads, others in promoting corporate image, and still others in maintaining contact with current and prospective customers. Measuring trade show effectiveness becomes even more complex once one realizes that exhibitors often have more than one objective.

Because of this wide range of objectives, most marketers rely on surrogate measures of performance such as audience activity, audience quality, proportion of target audience attracted to the booth, proportion contacted, and number of leads generated (Bellizzi and Lipps 1984; Cavenaugh 1976; Gopalakrishna and Lilien 1995). While several studies (Trade Show Bureau 1986, 1988, 1994) show that lead generation is the most frequently cited measure of trade show effectiveness, current and prospective customers must be attracted to the booth and must be contacted before they can turn into leads. Indeed, one might argue that exhibitors can generate a large number of good-quality leads only when they attract the right customers and prospects to their booth, and properly contact and screen them. We therefore use a firm's *ability to attract its target customers to its booth and to contact them* as a measure of trade show effectiveness. Gopalakrishna and Lilien (1994, 1995) and Gopalakrishna, Lilien, Williams and Sequeira (1995) use a similar operationalization and offer more detailed discussions of these issues.

We reemphasize the Wind and Thomas (1994) conceptualization at this point, because we build on that conceptualization both to justify our choice of dependent measure and to hypothesize cross-national differences: customers go through stages of the buying process, from recognizing

needs and how products and services might satisfy those needs, to preferring certain supplier-solutions to others, to actually making purchases and finally to post-purchase feedback. Marketing activities help manage this process. Needs must be recognized before they can be satisfied and products must be considered before they can be purchased. A key role of marketing is to identify where a customer or prospect is in the buying process and to target efforts accordingly (cf. van Waterschoot and Van den Bulte 1992).

Consider two prospective customers, Bill and Margaret, at a trade show. Bill has some vaguely recognized needs and he is searching broadly for possible supplier solutions. Margaret has clearly defined a need and has reduced her set of considered suppliers to three or four. (We use the term "consideration set" loosely here to refer to those suppliers the attendee is either simply interested in learning more about or those she is seriously interested in). Pre-show promotion (both publicity and direct mail/invitations to visit the booth) by exhibiting firms, as well as booth visibility (size and location) and other on-site promotion activities could have an important influence on Bill's booth-visiting activities at the show. The same marketing actions may affect Margaret also, but mainly for the smaller number of alternatives in her set of considered solutions. Furthermore, Margaret may be motivated to seek out (or make an appointment to visit) a small, poorly located and less heavily promoted booth of a supplier in her consideration set, while Bill may not be so motivated.

Trade shows in most industries attract a mixture of Bills and Margarets. In shows with a large proportion of Bills, we should expect that individuals will have unformed (implicitly larger) consideration sets and, hence, we should see more booth visiting activity with a major proportion of the variance in that activity explained by the pre- and at-show activities of exhibitors. In shows with a large proportion of Margarets, the amount of booth visiting activity may be less (fewer visitors per booth), and the variance in that activity that can be explained by these pre- and at-show activities may also be less.

Our story about Bill and Margaret relates to some differences in the role of trade shows in the US and the UK, described more fully in the next section. Visitors to US trade shows are

typically earlier in the buying process than those in the UK, where it is common to make personal appointments to meet and to conduct business at the show. In line with our reasoning above we will expect that exhibitor-controlled attraction variables should explain less variance in the UK than in the US and that the mean level of attraction effectiveness should be higher in the US than in the UK.

3. DATA AND HYPOTHESES

We describe our data before our model, as our research is both made possible and limited by the data we have available. These data were collected by two closely-related exhibit research firms: Exhibit Surveys Inc. in the US and Exhibition Surveys Ltd. in the UK. Both firms have been using essentially the same set of measurements and methods for a wide range of shows for well over a decade now.

Their data-collection process consists of two parts. First, the research firm mails a questionnaire to a probability sample of show attendees to infer the size of an exhibiting firm's target audience (based on the question "What products were you interested in seeing at the show?") and the number of visitors attracted to the booth of an exhibiting firm (from the question "Which booths did you visit at the show to collect information or to speak to a salesperson?"). We use the ratio of these two measures,

$$\eta = \frac{\text{number of attendees from target audience who actually visited your booth to talk or to obtain literature}}{\text{size of the target audience (based on stated product interest)}},$$

as our booth attraction effectiveness measure. This measure spans the first and second stages in the three-stage framework of Gopalakrishna and Lilien (1995). They define attraction effectiveness in their first stage as the percentage of the target audience attracted to the booth, and define the contact effectiveness in their second stage as the percentage of booth visitors (out of the target audience) that salespeople at the booth talked to. The product of these two effectiveness measures results in our "booth-attraction" measure (apart from the fraction coming to the booth to get literature without talking to the salespeople at the booth) .

In the second part of the data-collection process, the research firm sends a separate questionnaire to its client firms that exhibited at the show. This questionnaire asks for information on a number of tactical decision variables like booth size, extent of pre-show promotion, number of personnel at the booth, etc. Unlike Gopalakrishna and Lilien (1995), who only used data on participation at a single show, we use data across multiple shows. As such, we also include several show-specific characteristics to explain the observed variance in booth attraction efficiencies across show participations. Show organizers provided several of these measures (e.g. the attendance figures), while we used a key-informant approach for others, asking the managers of the exhibit research firms to classify the shows as horizontal or vertical, or to classify firms as major or smaller players at a particular show.

In organizing the available data from the US and UK trade shows, we first examined the coverage of different industries in the two data sets. Since the US data had a much wider representation of industries as compared to the UK, we decided to restrict the domain to those industries that were found in both data sets. This process of "matching" at the industry level is important as it ensures some level of uniformity in the data and permits a more reasonable comparison. Our matching process resulted in ten industries for which there was comparable data in the two countries (namely, building and construction; communications; computers and computer applications; electrical and electronics; medical and health care; packaging; petroleum, oil and gas; plastics; printing; and radio, TV and cable).

Across these industries, we initially had 136 complete observations i.e., firm-show appearances, in the US sample and 80 complete observations in the UK sample. As is typical in this type of commercial (though proprietary) data, there were additional observations with missing entries for one or two explanatory variables. To increase the statistical power of our analysis, we augmented the original set of observations by imputing missing values for one variable, total pre-show promotion expenditure. We used an auxiliary logistic regression in each country separately, linking pre-show promotion to other variables, to impute the missing values (e.g., Afifi and Elashoff 1969). We obtained an R^2 exceeding 70% in both countries. We tested other functional

forms to impute the missing values, and found that the imputation was insensitive to the functional form of the auxiliary regression. Missing values were imputed for 45 additional US observations and 65 UK observations, thus generating a data set containing 181 US and 145 UK firm-show participations. Based on a statistical analysis of influence points (Belsley et al. 1980), we obtained our final data set containing 171 US and 135 UK observations. Below, we formulate a set of hypotheses on the effects of our explanatory variables within each country, and describe how we operationalized these variables.

Differences between countries

Business press articles suggest that differences exist between the US and the UK. European trade shows, for example, are often larger, run longer, and are held less frequently than US shows (Starchild 1991). European shows also attract more CEO's and senior executives (Friedlander 1993; O'Hara et al. 1993), who are more likely to come to the show with a single objective in mind (Dykeman 1979), and who often make their buying decisions at the show (Dykeman 1979; O'Hara et al. 1993). Pre-show promotional expenditures in Europe are often used to set formal appointments, while in the US such expenditures are usually aimed at generating initial interest. Also booth characteristics tend to differ across the United States and Europe (Exhibit 1). Because of these differences, some tactical decision variables may have different levels of effectiveness in the UK compared with the US, but because of lack of prior theory, we have not developed any prior hypotheses about these specific variable differences. However, following the arguments above and in the previous section, we hypothesize:

H1 Attraction variables explain more variance, and may have larger effects, in the US than in the UK.

H2 The mean level of attraction effectiveness in the US is higher than that in the UK.

Note that H1, if confirmed, may affect the managerial relevance of our findings for application in the UK. We return to this issue when we discuss our results and conclusions.

Insert Exhibit 1 about here

Firm-specific characteristics

Pre-show promotion. Firms often announce well in advance that they will exhibit at a particular show (Tanner 1995). For example, they may send personalized invitations using their own customer or prospect list, or the registration list made available by the show organizers. Other firms contact their customers by phone, or advertise in specialized trade magazines to announce their presence at an upcoming show. Unfortunately, we did not have detailed information on a firm's choice of promotional pre-show instruments. Moreover, we had to impute the overall level of pre-show spending for a proportion of our observations. Because the number of different promotional instruments that firms can adopt is quite large, and because piecewise linear specifications are more robust to stochastic errors generated by imputation (Hamilton 1992), we followed Gopalakrishna and Lilien (1995) and discretized the aggregate amount of pre-show promotional expenditures. We defined three categories: high, medium and low spenders. After converting all spending levels, in both UK and US, into constant 1975 US dollars, we defined high (low) spenders as those in the upper (lower) third of the spending distribution in their country. We assess the sensitivity of our findings to this allocation rule in Section 5. Our hypothesis is:

H3 Pre-show promotion has a positive effect on booth attraction effectiveness.

Booth size. Researchers and practitioners have argued that the potential of a booth to attract people is positively related to its size, all else equal (Gopalakrishna and Lilien 1995; Swandby et al. 1989; Tanner 1995). We use the square root of a booth's surface as our measure of booth size for two reasons. First, because of the variety of shows in our sample, the floor surface (in square feet) of the booths varies greatly and follows a highly skewed distribution. By taking the square root of booth surface, we reduce the skew in the data and avoid a few observations to drive our empirical findings (Cox and Snell 1989; Hamilton 1992). Second, our measure of booth size approximates booth facing length. The length of the booth along the aisle may be more

instrumental in attracting people to the booth than its total surface, since visitors are exposed to a multitude of visual stimuli when walking down an aisle, and exhibitors typically have only a few seconds to grab their attention (Hatch 1991; Williams et al. 1993). A similar argument holds for the design of shopping malls, where the store front is considered a major component of the store's overall attractiveness (Beddington 1982). A measure of size approximating booth facing rather than surface is also consistent with the retail and brand choice literatures, which relate the performance of a brand to its share of available shelf space (e.g., Bronnenberg and Vanhonacker 1996; Bultez and Naert 1988). We therefore hypothesize:

H4 Booth size has a positive effect on attraction effectiveness.

Personnel. The number of salespeople present at the booth may have a positive impact on both the number of people attracted to the booth, and on the percentage actually contacted (Gopalakrishna and Lilien 1995; Lodish et al. 1988). Gopalakrishna and Lilien (1995) did not include the number of salespeople in the first stage of their model, but found it to be an important determinant of the second-stage conversion effectiveness. A recent study sponsored by the Center for Exhibition Industry Research found the average number of staff to have a significant impact in the first stage as well in three out of six shows analyzed (CEIR 1996), and our performance measure captures effectiveness across both stages.

H5 Personnel density, expressed as the number of salespeople relative to the area of the booth, has a positive effect on attraction effectiveness.

Firm size. Large, well-known companies may have a competitive advantage in attracting people to their booth. Kerin and Cron (1987) found that firms with a larger customer base and greater sales volume performed better at trade shows, and Lilien (1983) identified the size of the firm as an important determinant of both trade show participation and spending level given participation. Williams et al. (1993) found that, all else equal, larger firms draw a larger share of the relevant target audience to their booth. Because of the great variability in industries and trade shows in our sample, however, we do not include absolute sales or personnel figures as our

measure of company size. Rather, the reputation and position of the firm in its industry compared to other exhibitors at the show is a more relevant determinant of the firm's attraction effectiveness as it controls for cross-industry variance. We used subjective estimates provided by managers at the exhibit research firms to determine whether a firm in our sample was a major player in the industry represented at a given show. Our hypothesis is:

H6 Firm size has a positive effect on attraction effectiveness.

Show-specific characteristics

Vertical/horizontal shows. Trade shows are traditionally classified as vertical or horizontal based on their market coverage. The former have a fairly narrow focus and attract a specific type of visitor (e.g. at the Association of Operating Room Nurses-show, most visitors are operating-room nurses, and the products displayed are almost exclusively used in operating rooms). Horizontal shows attract a much wider audience, and the interest in any one of the displayed product categories is much lower (e.g. many computer shows like COMDEX are not aimed at a specific market segment, but instead feature a wide variety of applications). Gopalakrishna and Williams (1992) and Kerin and Cron (1987) report lower effectiveness at horizontal shows than at vertical shows. We therefore hypothesize:

H7 Firms participating in horizontal shows experience lower attraction effectiveness than firms exhibiting at vertical shows.

Show size. The larger and more crowded the show, the harder it may be for attendees to find what they want (Bertrand 1989; Brewer 1996; Carman 1968). Based on the attendance figures provided by the show organizers, we categorized shows into two categories, large (upper 50 percent) versus small. We had to decide whether to measure show attendance relative to our entire sample or only relative to the other shows in a specific country. We chose the latter approach, as it better represents the problem that exhibitors face: to attract a given audience, they first select a specific geographic market (country). Only then does the specific type of show, large or small, become relevant. Moreover, the perceptions of what constitutes a large and crowded

show may differ between US and UK visitors. We assess the robustness of our findings to this definition of show size (i.e. relative to other shows in the same country) in Section 5. We hypothesize:

H8 Firms participating in small shows experience higher attraction effectiveness than firms exhibiting at large shows.

Industry characteristics

Type of industry. Firms in different industries may have different expectations or objectives when attending trade shows, or may use different strategies to attract customers to their booths. Kerin and Cron (1987) identified several industry factors as potential moderators for a firm's trade show performance. Gopalakrishna and Lilien (1994) found that the show effectiveness in the telecommunications and computer industries (i.e., fast moving, high technology products) saw a lower carry-over effect from previous trade show participations, and a higher effect of the characteristics of the current show participation. We use the same classification in our study, to assess to what extent firms in fast-moving/high-tech industries (i.e., telecommunications and computer) can expect a higher or lower *immediate* effectiveness when participating at a show. Specifically, in line with the Gopalakrishna and Lilien findings, we hypothesize:

H9 Firms in fast moving/short life cycle industries see greater attraction effectiveness than those in slower moving industries.

We summarize our hypotheses in Exhibit 2, and present summary statistics for the different variables in Exhibit 3. Both samples are very much alike in terms of their (average) effectiveness, as well as for most explanatory variables (e.g. firm size, booth size, personnel density), with two exceptions: the proportion of horizontal shows (much higher in the UK) and the proportion of high-tech firms (much lower in the UK).

Insert Exhibits 2 and 3 about here

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4. MODELING FRAMEWORK

We use a logistic-regression model (Hanssens, Parsons and Schultz 1990, p. 41) to test the hypotheses summarized in Table 2:

$$\ln\{\frac{\eta}{1-\eta}\} = \beta_0 + \beta_1 P_1 + \beta_2 P_2 + \beta_3 BS + \beta_4 PD + \beta_5 FS + \beta_6 ST + \beta_7 SS + \beta_8 IC \qquad (1)$$

where η = Attraction effectiveness;

P_1 (P_2) = Amount of pre-show promotional expenditures (P_1=1 if small; P_2=1 if medium; P_1=P_2=0 if large);

BS = Booth size (continuous variable expressed in feet);

PD = Personnel density, measuring the number of booth personnel per square feet (continuous variable);

FS = Firm size (0 if large, 1 if small);

ST = Show type (0 if vertical, 1 if horizontal);

SS = Show size (0 if small; 1 if large);

IC = Industry code (0 if fast moving/high technology; 1 otherwise).

This specification ensures logical consistency (η lies between zero and one for all possible values of the independent variables), allows for interaction effects (thereby allowing for interdependencies among the different trade show variables), and incorporates the notion of an S-shaped reaction curve.

First, we estimate the model in equation (1) separately for the UK and the US, after which we test the equality of the corresponding coefficients on the pooled model (2):

$$\ln\{\frac{\eta}{1-\eta}\} = [\ \beta_{0,US} + \sum_{j=1}^{8} \beta_{j,US}\ (X_j * US)\ ] + [\ \beta_{0,UK} + \sum_{j=1}^{8} \beta_{j,UK}\ (X_j * UK)\ ] \qquad (2)$$

where US (UK) = Indicator variable taking the value of 1 for a US (UK) observation, and zero otherwise;

X_j (j=1, ..., 8) = The aforementioned firm, show and industry characteristics;

$\beta_{j,.}$ = Parameters to be estimated.

Gopalakrishna and Lilien (1995) used an alternative model specification which also ensured logical consistency when estimated for a single country:

$$\eta = \alpha_1^{P1}\alpha_2^{P2}\{1-\exp(-\lambda_1 BS)\}\{1-\exp(-\lambda_2 SD)\}\alpha_3^{FS}\alpha_4^{ST}\alpha_5^{SS}\alpha_6^{IC} \quad (3)$$

with $0 \leq \alpha_i \leq 1$. While this specification has a number of attractive normative properties, we have not been able to generalize it so that it can easily be applied to a two-country setting while maintaining all the desired flexibility and logical consistency properties (technical details are available from the authors). The key reason for this is that the α parameters determine both the effect of the dummy variables and the ultimate ceiling value of the dependent variable. Hence, we use the simpler logistic specification that keeps these two issues separate and that meets our primarily goal of easy generalizability. As we will see in section 5, our within-country conclusions are robust to these differences in model specification.

5. EMPIRICAL FINDINGS

Parameter estimates

Results for the US. For the United States, we obtain a good model fit with 55% of the sample variation in attraction effectiveness explained by firm and show characteristics (Exhibit 4). Moreover, apart from the show type variable (H7), all parameters estimates are significant and have the expected sign. In terms of the tactical decision variables, firms can expect to attract a higher percentage of their target audience when they spend a larger amount on pre-show promotions (H3), have a larger-sized booth (H4), and staff the booth with more personnel per square foot (H5). Larger firms attract a larger proportion of their target audience (H6). We also find evidence that potential customers navigate smaller shows more effectively, as a higher percentage of the target audience finds its way to booths exhibiting products they are interested in (H8). Firms exhibiting high-tech, fast-moving products have a higher effectiveness (H9). This corroborates the finding by Gopalakrishna and Lilien (1994) that such firms experience less carry-over from one trade show to the next but larger immediate effects from their current actions. Thus,

parameter estimates (Judge et al. 1988). Our results were extremely stable in all analyses, both in terms of sign, significance and relative magnitude. (Results on the jackknife estimates are available from the authors).

Competing model specifications. We validated our findings using three competing model specifications: the linear model, the multiplicative or Cobb-Douglas specification, and the formulation used in Gopalakrishna and Lilien (1995). The first two can generate predicted effectiveness levels outside the logical 0-1 region, and hence are not logically consistent, even when applied to a single country. The last model is consistent for a single country, but we have not been able to satisfactorily extend it with interaction terms to capture cross-country differences. In spite of these limitations, all models resulted in a comparable fit when estimated for each country separately, as indicated in Exhibit 6. The signs and significance levels of the parameter estimates were equivalent in all model specifications, with the single exception that we found no industry effect for the multiplicative model in the US. In sum, our specification results in comparable fit values and similar substantive insights, but is more appealing than the considered competing models because of its logical consistency, necessary for the managerial uses suggested below.

Insert Exhibit 6 about here

Forecasting validation. To test the model's predictive validity, we omitted 10% of the observations, and estimated the model based on the remaining data points. We then used the resulting parameter estimates to forecast the omitted observations, and computed the predictive R^2 and mean squared prediction error. We repeated this procedure until the entire data set had been covered, and computed the average mean squared prediction error and average predictive R^2 (see Gopalakrishna and Lilien 1995 for a similar procedure). The results for both the UK and the US sample (Exhibit 7) indicate that the mean squared error in the main estimation analysis is close to the mean squared prediction error, and also the predicted R^2 is similar to the values reported in Exhibit 4. The results, therefore, appear to be quite stable (Neter et al. 1990, pp. 466-468).

Insert Exhibit 7 about here

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6. USING THE ESTIMATED RESPONSE MODEL

Gopalakrishna and Lilien (1995) identify a number of potential uses for this kind of response model, such as answering what-if questions, assessing trade-offs between different control variables (i.e., determining the least-cost combination that results in a given effectiveness level), and conducting performance audits. In the latter case, one uses the model to derive a norm or performance benchmark against which the actual performance can be compared. Buzzell and Gale (1987) describe benchmarking applications derived from the PIMS data, where R^2 values varied from 0.31 to 0.52, and Lilien and Weinstein (1984) report results for a pooled US/European sample for ADVISOR data, with R^2 values varying from 0.53 to 0.72. Our findings indicate that different benchmarks should be used when evaluating a firm's performance at US and UK trade shows, and that the UK results (with explanatory power of 0.29, near the bottom of the range of comparable studies reported above) should perhaps be used with some caution. The US results, however, are comfortably within the range of the results noted above and therefore could be used with more confidence.

As an illustration of one possible use, consider Exhibit 8. There we profile two of the US firms in our data set. The first firm falls below expectations, in that it does not attain its performance benchmark (Actual attraction = 25.3% vs. US norm = 32.1%). Its management may try to find what caused this inferior performance, such as poor execution of the pre-show promotional campaign, inadequate training of its booth personnel, poor exhibit location or lack of "exciting" products. Were that firm to exhibit in the UK, essentially the same story would result (UK norm =31.2%) .

The second firm, on the other hand, appears to be doing well, as it exceeds its (US) performance norm (Actual = 36.7% vs. US norm = 26.7%). Were it to follow those same allocation rules in the UK, it would see a norm of 48.0%, and its US performance level should be viewed as less than satisfactory. This illustrates both the use of the model and the possible risk associated with applying US results in other countries.

There are clearly other uses for these models: for example, they allow managers to assess go / not go decisions as well as to run "what-if" scenarios for different shows (horizontal vs. vertical, large vs. small) and different tactical activities at those shows (number of booth personnel, size of booth, level of pre-show promotion), determining the likely returns in terms of attraction effectiveness to alternative trade show investments in the US and the UK.

Insert Exhibit 8 about here

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7. CONCLUSION

Our study has generalized and extended the earlier research findings on trade shows in three important ways.

- First, we have tested and extended findings from a single US show to a large sample of US shows.
- Second, by considering multiple shows, we have augmented earlier benchmark results with show- and industry-specific variables.
- Third, we have tried to describe and explain the extent to which US-based findings are generalizable to trade show participation in another country, the United Kingdom.

Overall, we found that even though a number of the effects did not differ across both countries (e.g., the importance of booth size and pre-show promotion), the trade show plays a bit of a different role in the marketing mix in these two countries and, accordingly, trade show visitors behave somewhat differently in the US and the UK.

Many of our findings are exploratory in nature, though, and identify several areas for future research. First, our research was both made possible and constrained by the available data. On the positive side, we used comparable samples in two different countries (collected using the same measurement procedures), and the commercial nature of our data ensures that this is also the type of information managers can generally expect to have available to evaluate their trade show performance. On the other hand, there were some important data limitations. We had no data on the type of pre-show promotional expenditures, and had to use a crude proxy to capture the

crowdedness of a given show. This proxy could have been refined if data on the total show area and the number of exhibitors had been available. Future research should address these limitations.

A key limitation and potential area for improvement is the collection of data on the objectives of show visitors, the amount of pre-show planning on their part, the suppliers they planned to visit and those they decided not to visit, and so forth. The differences we found in response parameters across countries suggest that the effectiveness of tactical variables hinges on how much trade show attendees plan their visits and where they are in their buying decision process. Research involving measures of the moderating effect of pre-show planning and buying stage would be particularly valuable to exhibitors, as such information would help them tailor their trade show decisions to their objectives and target groups, such as creating awareness among "suspects" versus generating immediate sales from hot "prospects" (cf. Rosson and Seringhaus 1995). We suspect that if companies (guided perhaps by the research firms that supply such data) begin collecting such data, it will also help improve the ability of models such as ours to explain show effectiveness, especially in settings where such variables are likely to have a larger impact, such as slower moving industries and European countries.

Another important area for future research is to assess the returns, in terms of lead-generation, dollar contribution and other objectives, of various types of trade show investments. The impact of exhibitions on sales demands more research, as emphasized by a recent large-scale study conducted by Deloitte & Touche for the industry-sponsored Center of Exhibition Industry Research (CEIR 1996; see also Gopalakrishna et al. 1995).

This study focused on trade show participation in the US and the UK. More work is also needed to extend our findings to other countries. The differences we observed in this study are likely to be a conservative estimate of the differences one would encounter when going to other European, Asian, or African countries. Not only is the UK quite similar to the US in terms of the percentage of the communications budget spent on trade shows compared to other European countries (around 10-20%, as opposed to approximately 25-30% in Germany), but US manufacturers going to trade shows in the UK do not face the language barriers they encounter

when going to France or Germany. Given that we have found substantial differences between the United States and the United Kingdom, US managers should be even more careful when transferring their domestic trade show practices to countries other than the UK.

On net, we feel that this work takes an important step in helping understand and measure the key factors driving trade show effectiveness, when those effects generalize and whether they vary across industries, show types, and countries.

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EXHIBIT 1
SOME QUALITATIVE DIFFERENCES BETWEEN TRADE SHOWS IN EUROPE AND IN THE UNITED STATES

CHARACTERISTICS	EUROPE	UNITED STATES
Size, duration, frequency	Large, long, less than annual frequency	Smaller, shorter, often annual
Waiting lists for exhibitors	Common	Not as common
Audience	Includes CEO's and top executives	Rarely includes top management
Pre-show planning (attendee)	Formal with set appointments	Casual with walk-ins accepted
Booth staffing	CEO's and top management	Sales execs & mid-management
Refreshments at booth	Expected	Not customary
Gimmicks, magicians, games	Less acceptable	Well-established practice
Name badges	Fairly common	Always used
Booth space basics	Hardwall booth construction Elevated risers common Multi-story display common	Pipe & drape most common Floor level most usual Emerging trend
Sales practices on show floor	Separate or enclosed conference area in booth	Off-site hospitality suite or a conference area in the booth
Stage in buying cycle	Often advanced stage, closing large deals at the show is not uncommon	Typically early stages in the buying cycle

Sources: Dykeman (1979); O'Hara et al. (1993); Rosson and Seringhaus (1995); Tanner (1995).

EXHIBIT 2
HYPOTHESIZED EFFECT OF TRADE SHOW VARIABLES ON BOOTH ATTRACTION EFFECTIVENESS

VARIABLE	EFFECT	SOURCE OF HYPOTHESES
All attraction variables	US	Dykeman 1979; Friedlander 1993; O'Hara et al. (1993).
Mean (intercept)	US	Dykeman 1979; Friedlander 1993; O'Hara et al. (1993).
Pre-show promotion	+	CEIR (1996); Gopalakrishna and Lilien (1995); Tanner (1995); Williams et al. (1993).
Booth size	+	Bultez and Naert (1988); CEIR (1996); Gopalakrishna and Lilien (1995); Gopalakrishna and Williams (1992); Swandby et al. (1989).
Staff density	+	CEIR (1996); Gopalakrishna and Lilien (1995); Gopalakrishna and Williams (1992); Lodish et al. (1988).
Firm size	+	Kerin and Cron (1987); Lilien (1983); Williams et al. (1993).
Show type	V	Gopalakrishna and Williams (1992); Kerin and Cron (1987).
Show size	-	Bertrand (1979); Brewer (1996); Carman (1968).
Industry	FM/HT	Gopalakrishna and Lilien (1994); Kerin and Cron (1987); Rosson and Seringhaus (1991).

US = Larger effect in the US.
V = Higher effectiveness for vertical show.
FM/HT = Higher effectiveness for fast moving / high technology industries.
+ / - = Positive effect / negative effect.

EXHIBIT 3
DESCRIPTIVE STATISTICS FOR MODEL VARIABLES

	UNITED STATES N = 171			UNITED KINGDOM N = 135		
Variable	Mean	Std. Dev.	Range	Mean	Std. Dev.	Range
Independent Variables						
Pre-show promotion*						
small	33%	-	-	33%	-	-
medium	33%	-	-	33%	-	-
Booth size (feet)	48.8	19.7	15.5-112.3	42.9	16.6	15.4-101.1
Personnel density	0.011	0.006	0.002-0.046	0.009	0.005	0.001-0.025
Firm Size*	51%	-	-	46%	-	-
Show Type*	6%	-	-	64%	-	-
Show Size*	51%	-	-	52%	-	-
Industry*	27%	-	-	61%	-	-
Dependent Variable						
Efficiency	28.6%	12.9%	5.6-62.8%	26.5%	11.8%	5.5-59.4%

*: 0 - 1 variables. We report the proportion of the observations having the value 1.
Firm size: 1 if small firm, 0 otherwise.
Show type: 1 if horizontal show, 0 otherwise.
Show size: 1 if large show, 0 otherwise.
Industry: 1 if not fast moving / high technology, 0 otherwise.

EXHIBIT 4
PARAMETER ESTIMATES

VARIABLE	UNITED STATES $R^2 = 0.551$ $R^2adj. = 0.529$	UNITED KINGDOM $R^2 = 0.293$ $R^2adj. = 0.248$
Intercept	-1.121[c]	-1.225[c]
Pre-show promotion		
small	-0.481[a]	-0.364[a]
medium	-0.259[a]	-0.099
Booth size	0.013[a]	0.017[a]
Staff density	10.111[b]	-1.247
Firm size	-0.516[a]	-0.051
Show type		
Show size	-0.049	-0.457[a]
	-0.182[a]	0.016
Industry	-0.172[a]	-0.256[a]

a: significant at $p < 0.05$ (one-sided test);

b: significant at $p < 0.10$ (one-sided test);

c: significant at $p < 0.05$ (two-sided test).

EXHIBIT 5
SUMMARY OF SUBSTANTIVE FINDINGS[a]

VARIABLE	EFFECT IN US		EFFECT IN UK
Overall fit (R^2)	.55		.29
Intercept	yes	=[b]	yes
Pre-show promotion	yes	=	yes
Booth size	yes	=	yes
Staff density	yes		no
Firm size	yes		no
Show type	no		yes
Show size	yes		no
Industry	yes	=	yes

[a] An equal sign (=) means that the parameter estimates are significant in both countries, and not significantly different across countries.

[b] Restricting the analysis to vertical shows produces a larger, and sizable, difference in intercept estimates, although it is not statistically significant.

EXHIBIT 6
COMPARISON OF FIT OF COMPETING MODEL SPECIFICATIONS

	United States R^2 =	United Kingdom R^2 =
Linear model	0.550	0.294
Multiplicative model	0.560	0.298
Gopalakrishna and Lilien (1995)	0.547	0.295
Proposed logistic model	0.551	0.293

EXHIBIT 7
ASSESSMENT OF THE PREDICTIVE VALIDITY OF THE LOGISTIC MODEL*

Country	Average MSE (estimation)	Average MSPE (hold out)	Average Predicted R^2
United States	0.00742	0.00829 (+12%)**	0.491
United Kingdom	0.00988	0.01137 (+15%)	0.257

* We used the following procedure: estimation on 90% of data and prediction for hold-out 10%, rotating through the data sets until the entire data set was covered, and averaging across rotations.

** Percent higher (+) in hold out samples than in estimation samples.

EXHIBIT 8
USING THE MODEL FOR PERFORMANCE AUDITS FOR TWO FIRMS FROM THE US DATA BASE

	FIRM 1	FIRM 2
Pre-show promotion	Medium	Medium
Booth size	54.7	70.71
Staff density	0.008	0.012
Firm size	Large	Small
Show type	Horizontal	Vertical
Show size	Large	Large
Industry	FM/HT	FM/HT
Actual Effectiveness	25.28%	36.73%
US norm*	32.16%	26.68%
UK norm*	31.22%	48.04%

*: The norms are the predicted values of a restricted model in which all insignificant parameters are set to zero.